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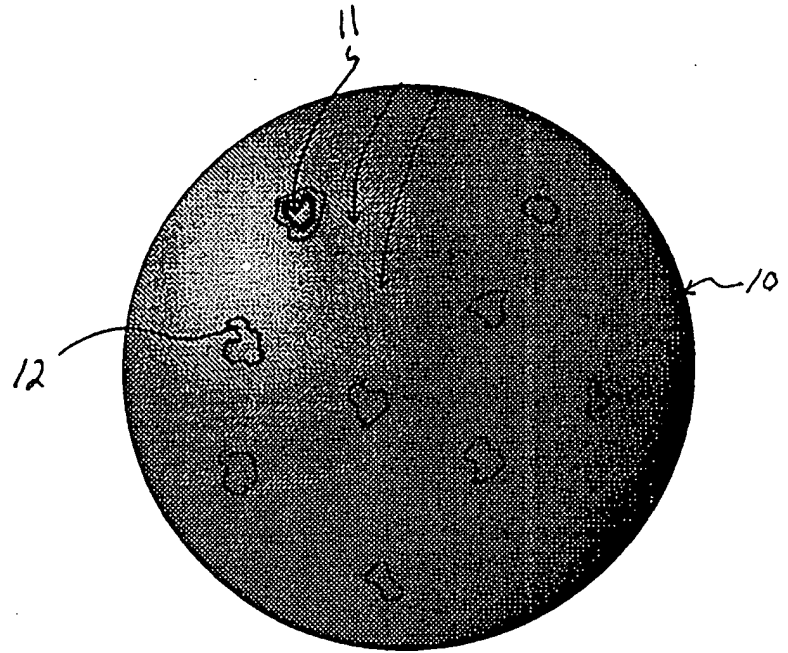


Fig. 1

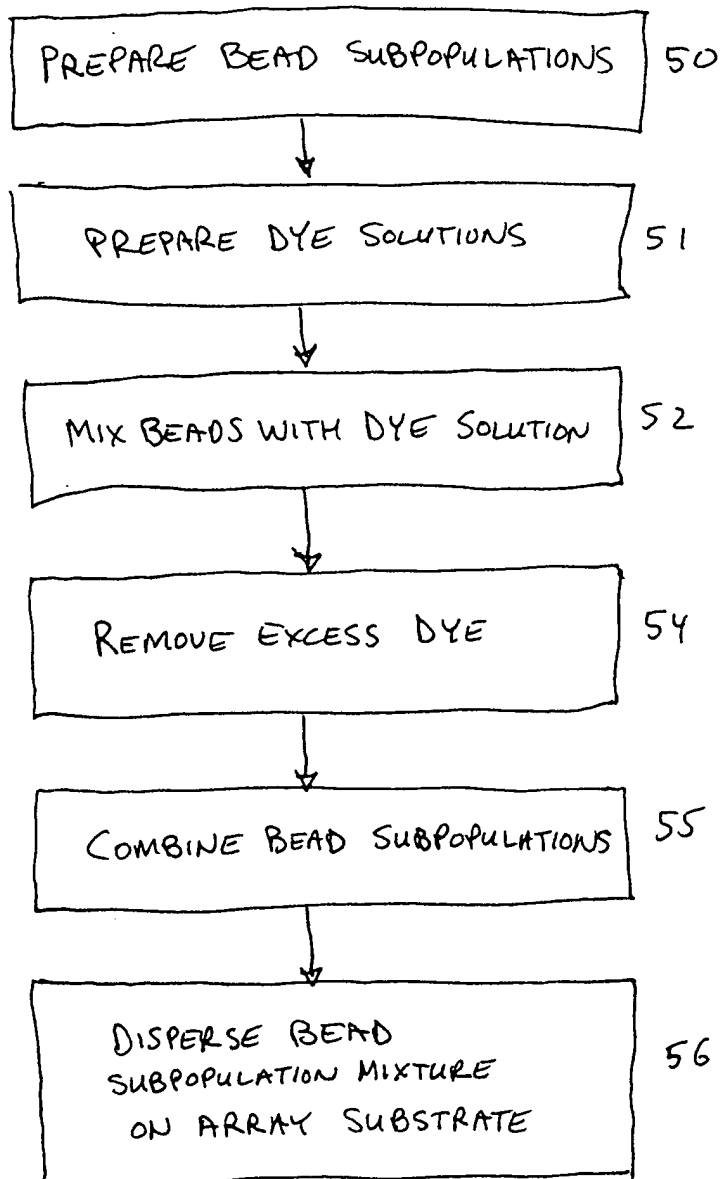
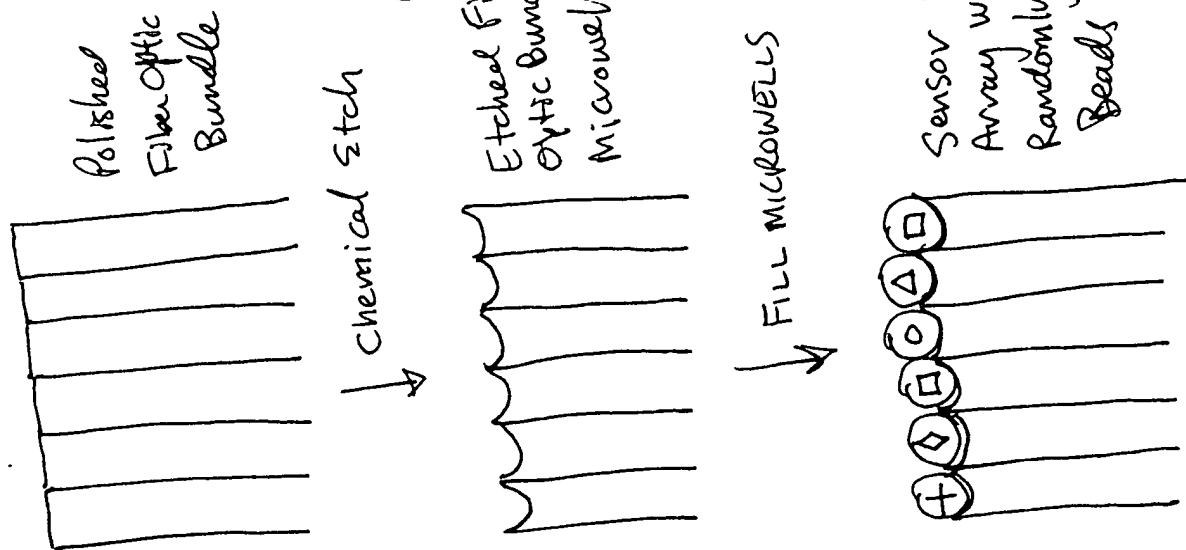


Fig. 2

Fiber Optic Array Preparation



(B)

BEAD SUBPOPULATION PREPARATION

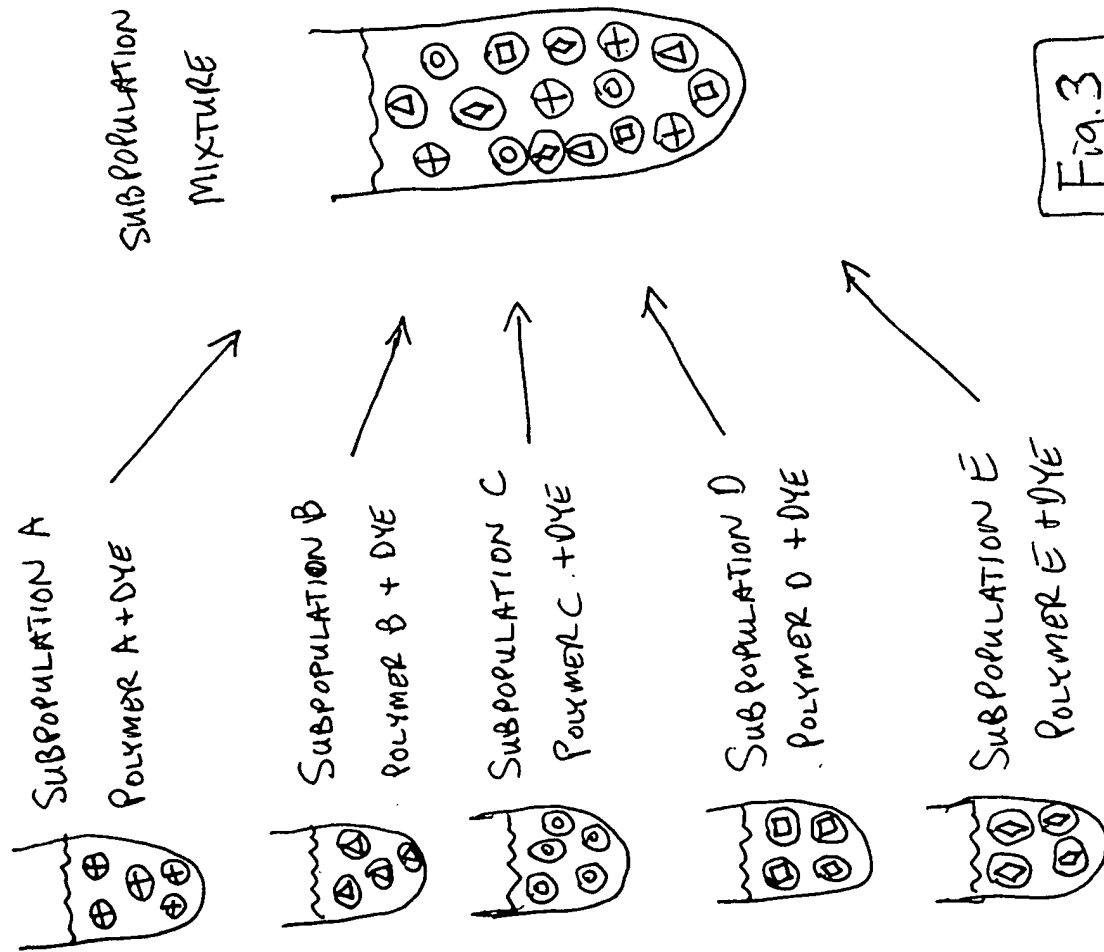


Fig. 3

(A)

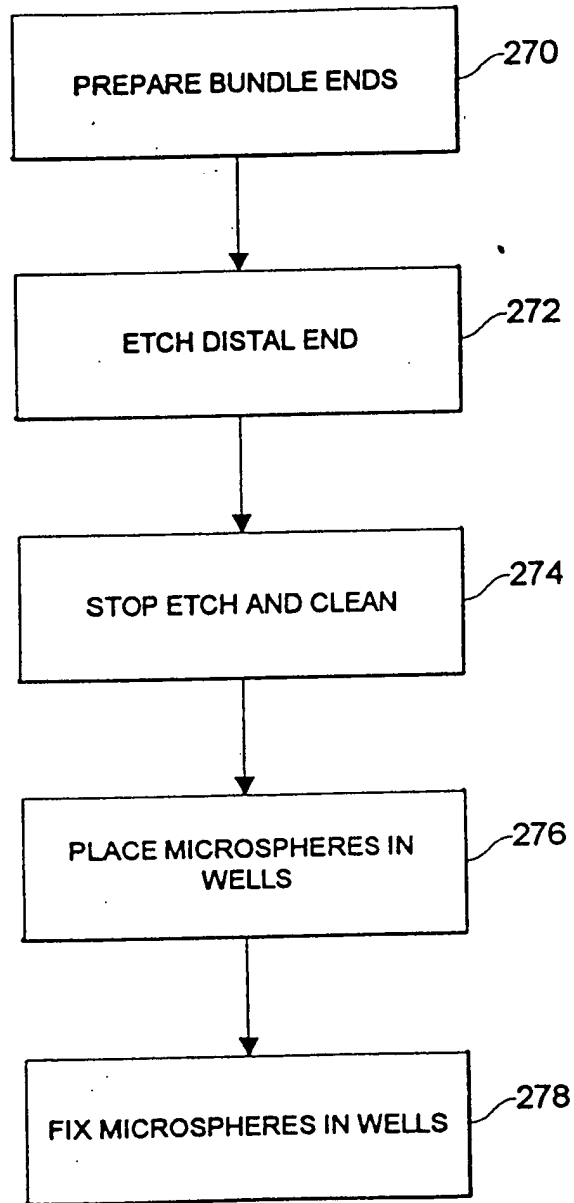


Fig. 4

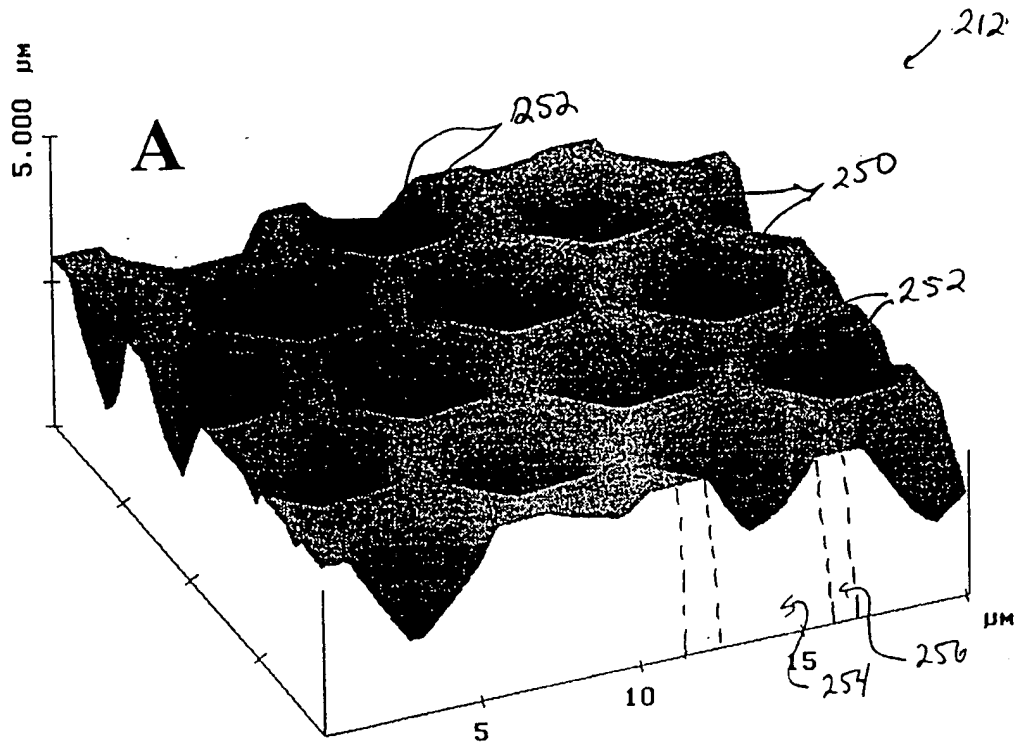
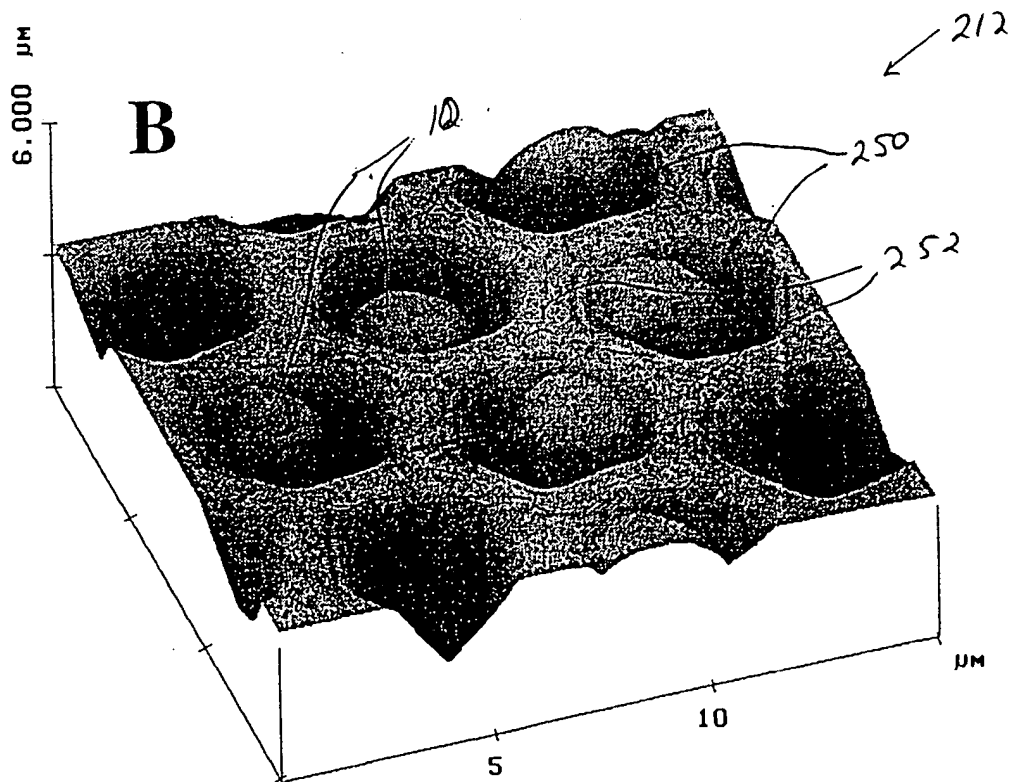
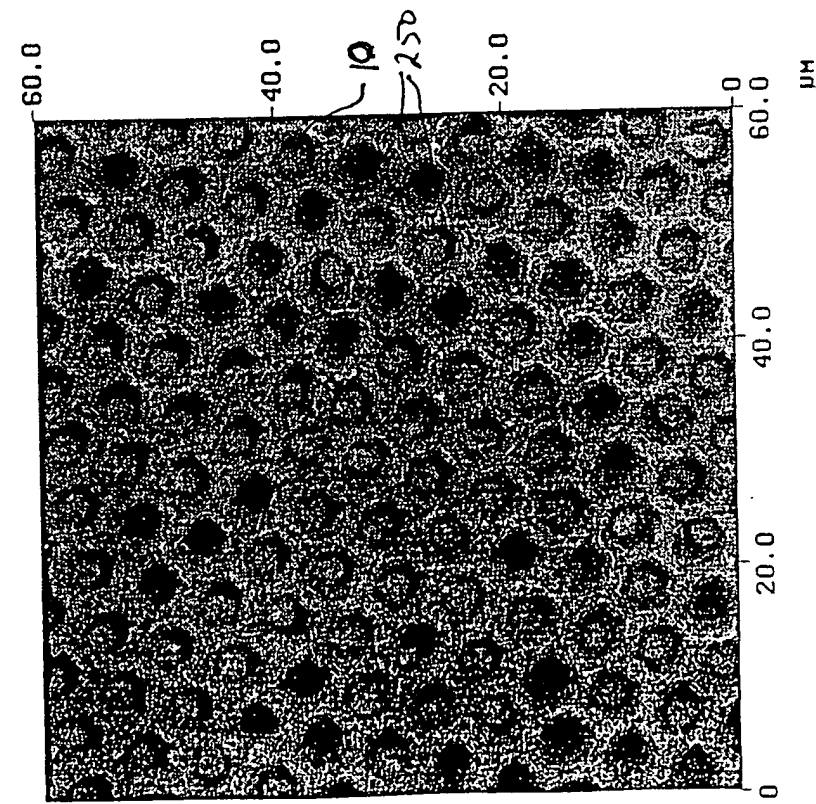


Fig 5B

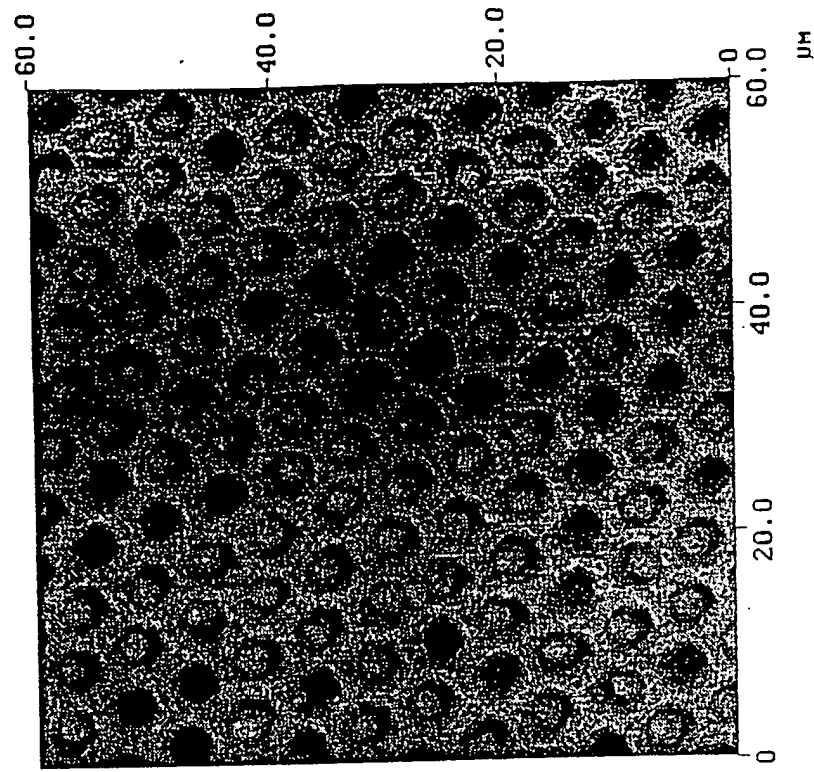


Polymer Coated Beads in Wells After Air Pulse and Tapping



Before Tapping

Fig. 6A



After Tapping

Fig. 6B

665070 62528260

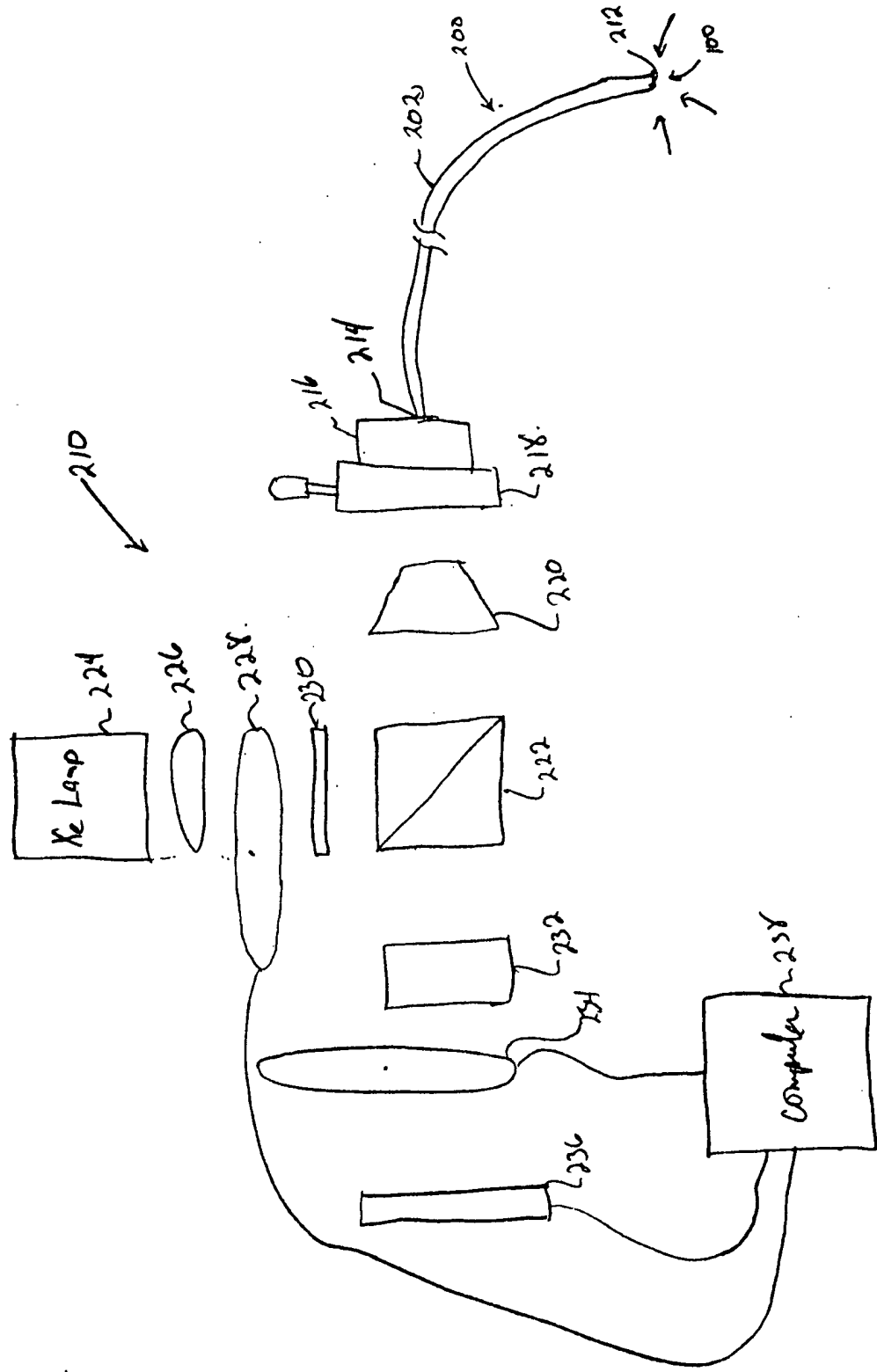
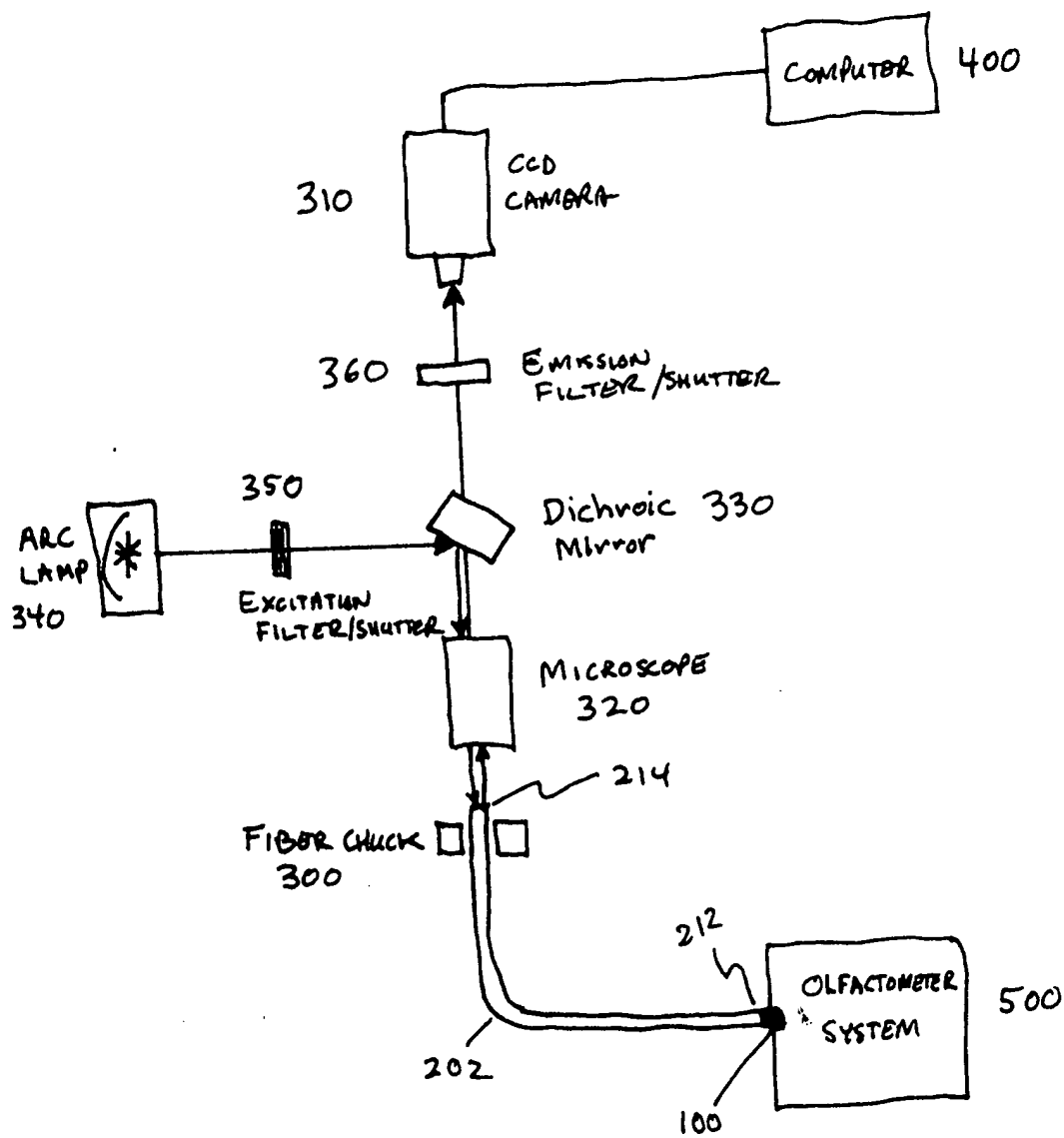


Fig. 7

665070 243360



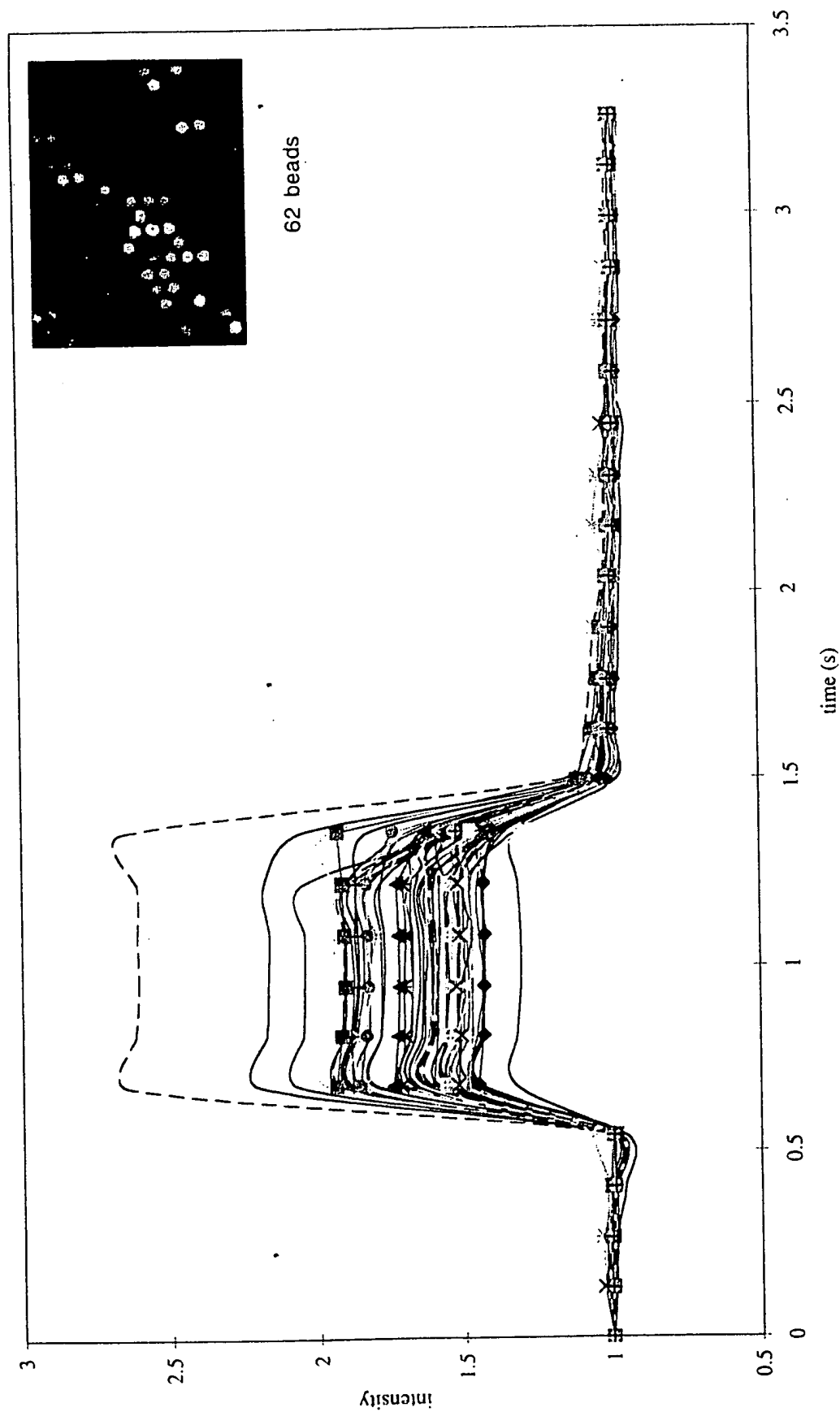
~~Fig 8~~

~~Fig 8~~ Fig 8

~~SECRET~~

Fig. 9

Porous 3 μ m silica beads high-speed response to Saturated Toluene



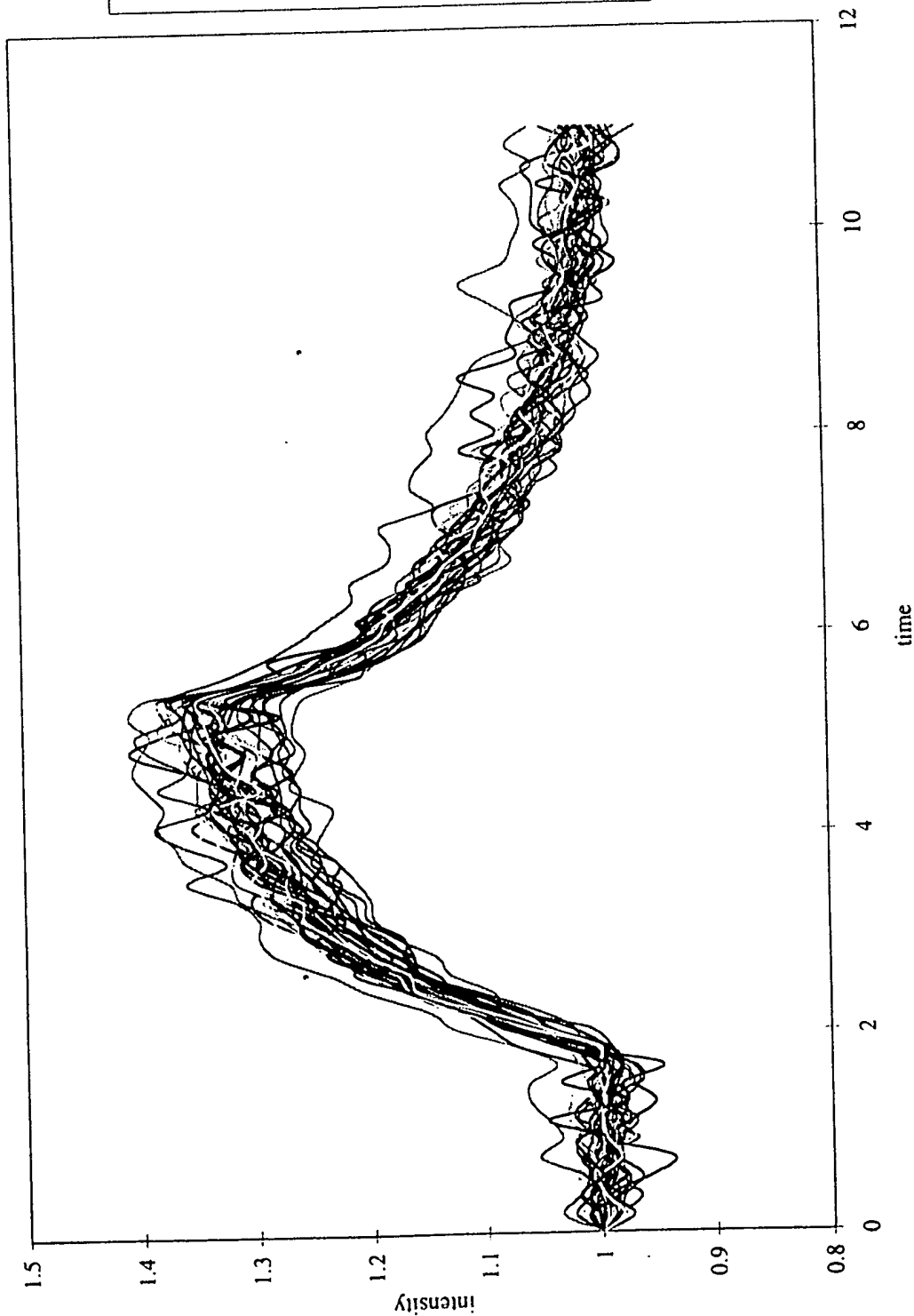
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Fig. 10

PMS Beads in Fiber: Response to Methanol (sat)

39 beads, mid-fiber region: centroid ovals, standardized responses



1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16
17	18
19	20
21	22
23	24
25	26
27	28
29	30
31	32
33	34
35	36
37	38
39	

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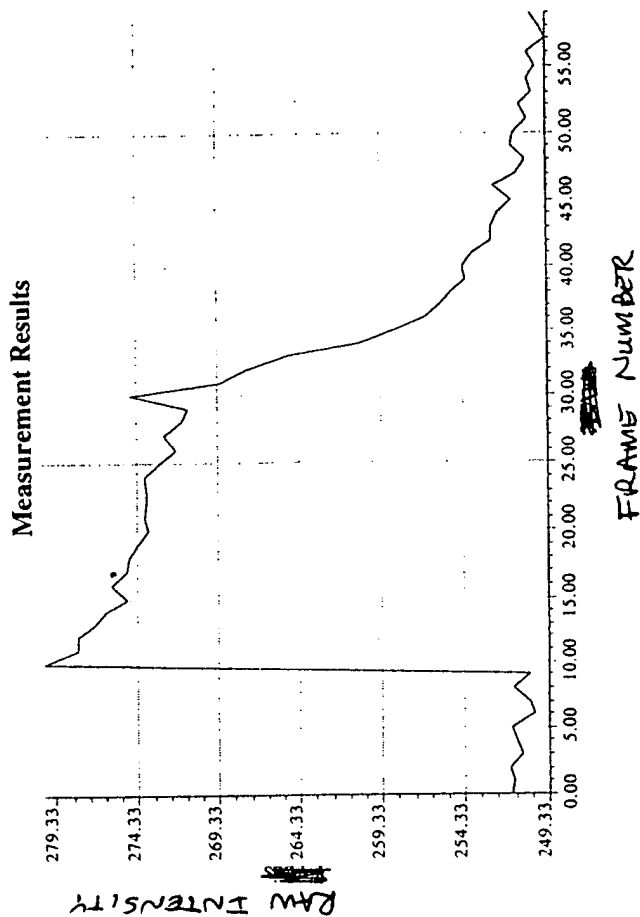
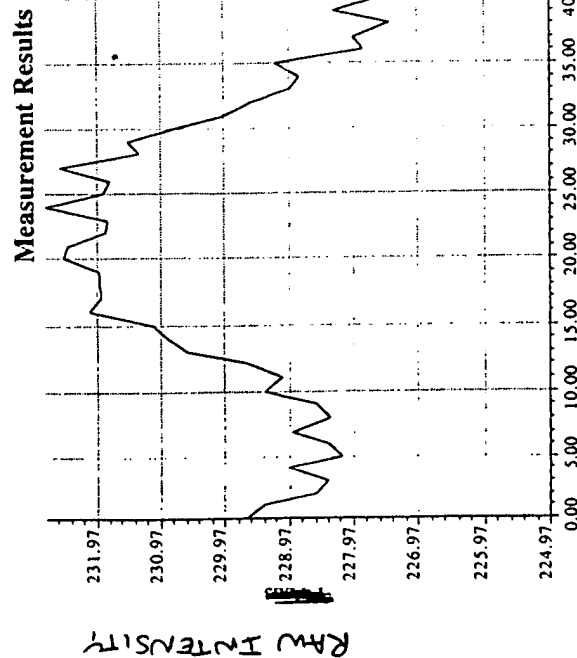
Fig. 11A/11B

PS802 648.c Beads

bead 1

Saturated Toluene

Saturated Methanol

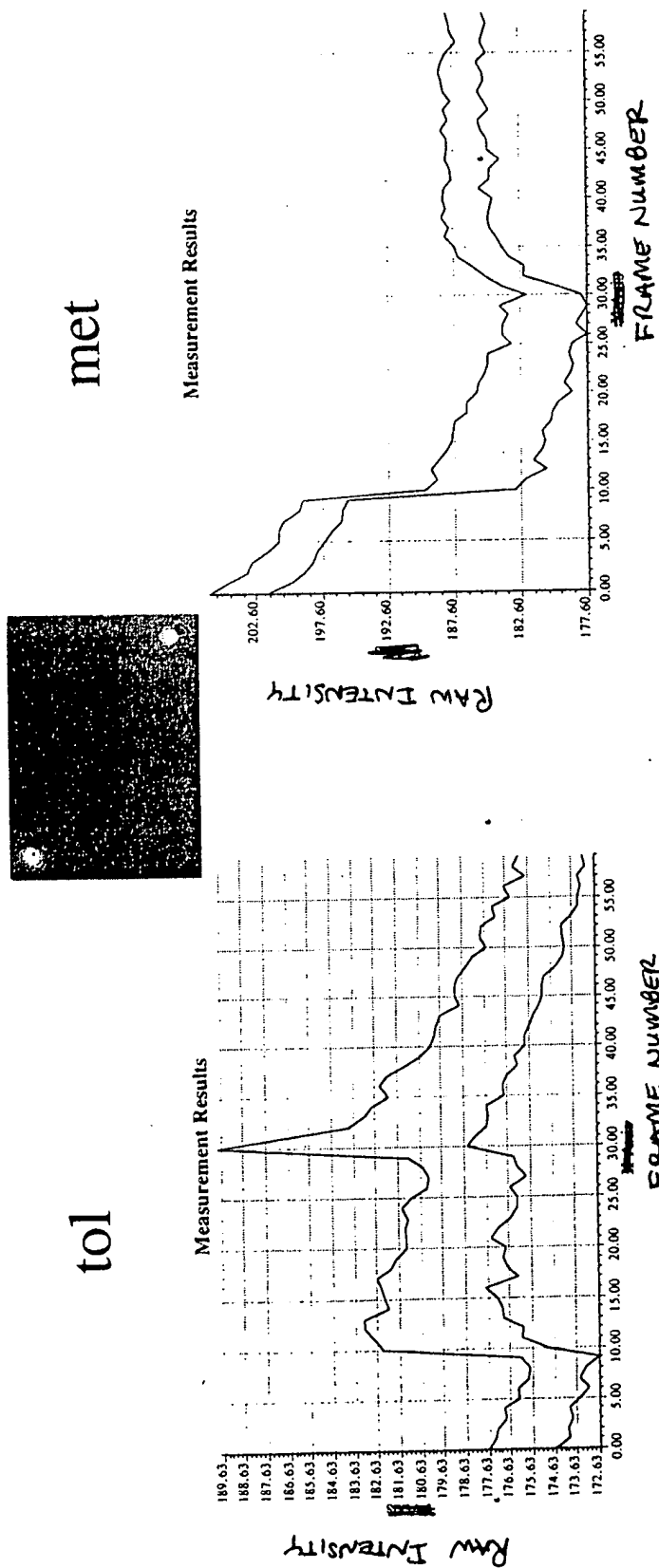


~~663070" E/S/3233~~

~~663070" E/S/3233~~

Fig. 12A/12B

PDPO/psil 9/11



(A)

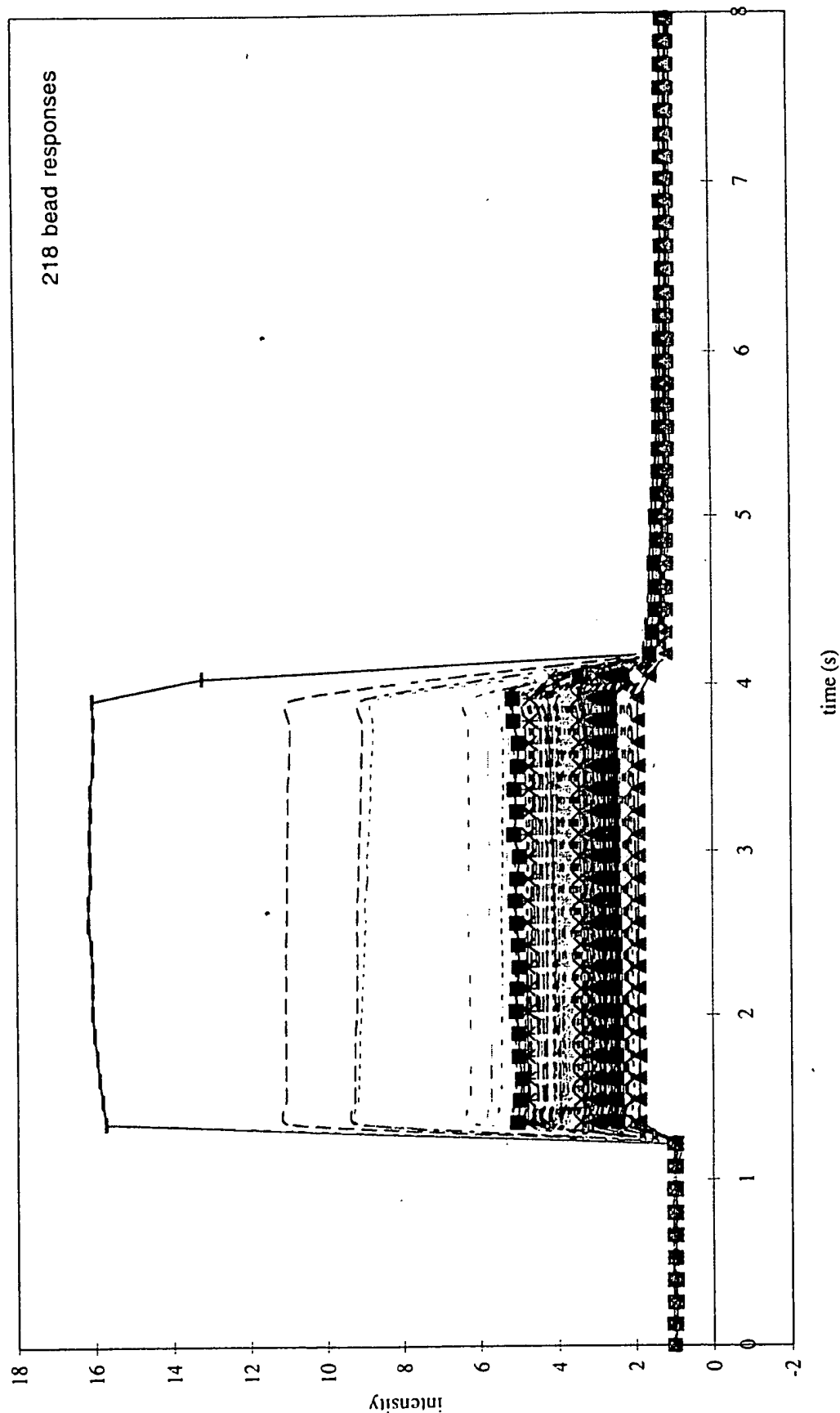
(B)

26050

12A/12B

Fig. 13

Porous 3μm silica beads response to Ethyl Acetate



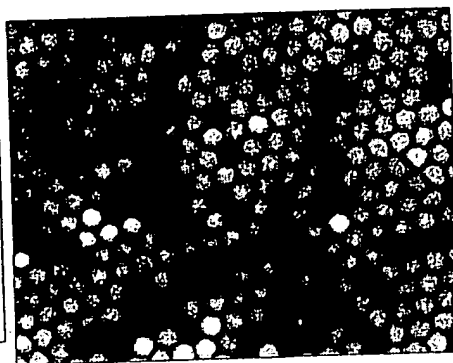
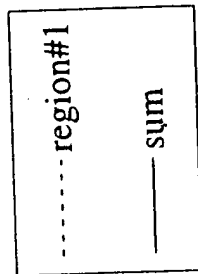
218

218

218

Robert J. M. Smith

Normalized signal-to-noise comparison between bead #1 and summed responses of 39 beads

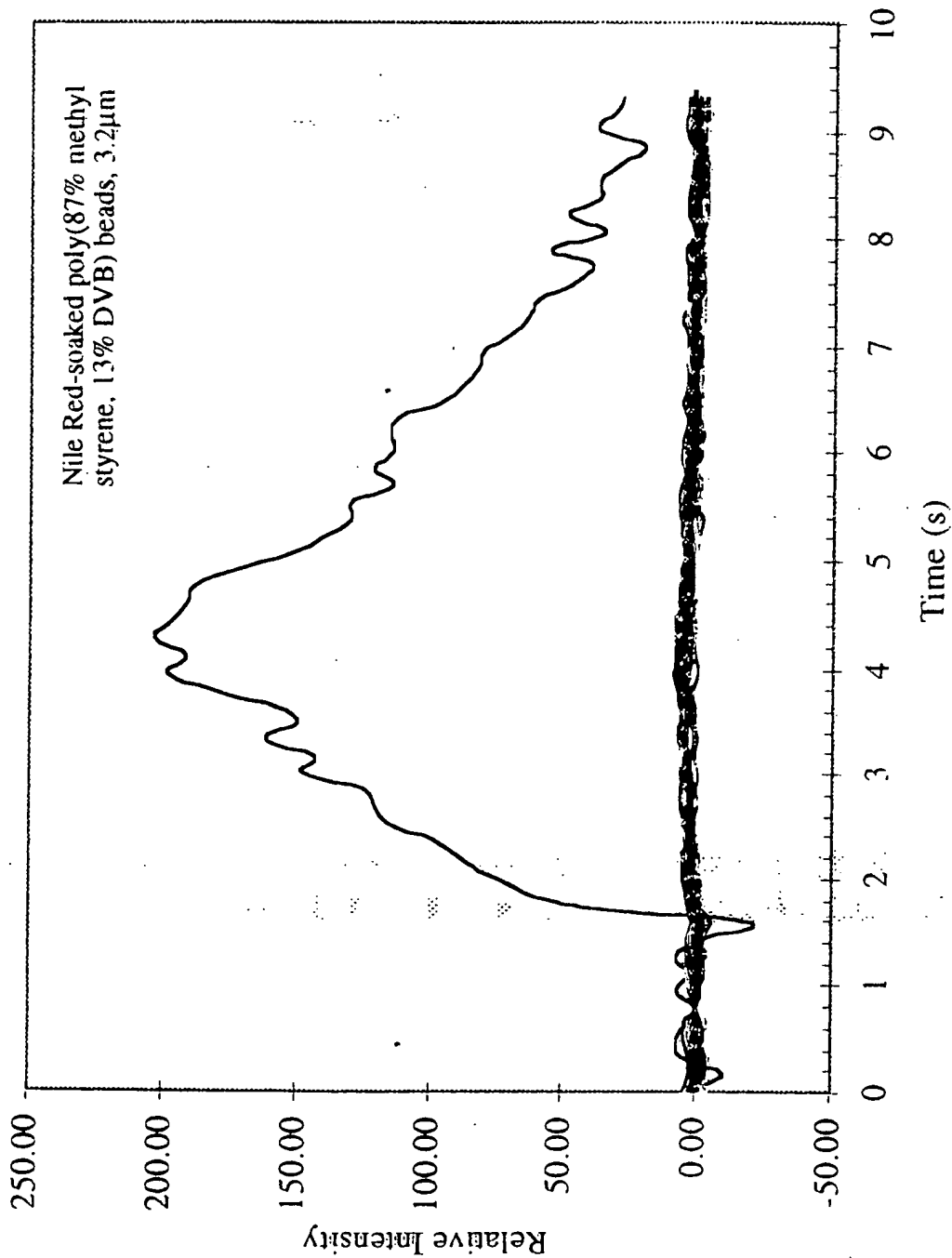


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Fig. 15

Signal Enhancement Through Multi-bead Response Summing



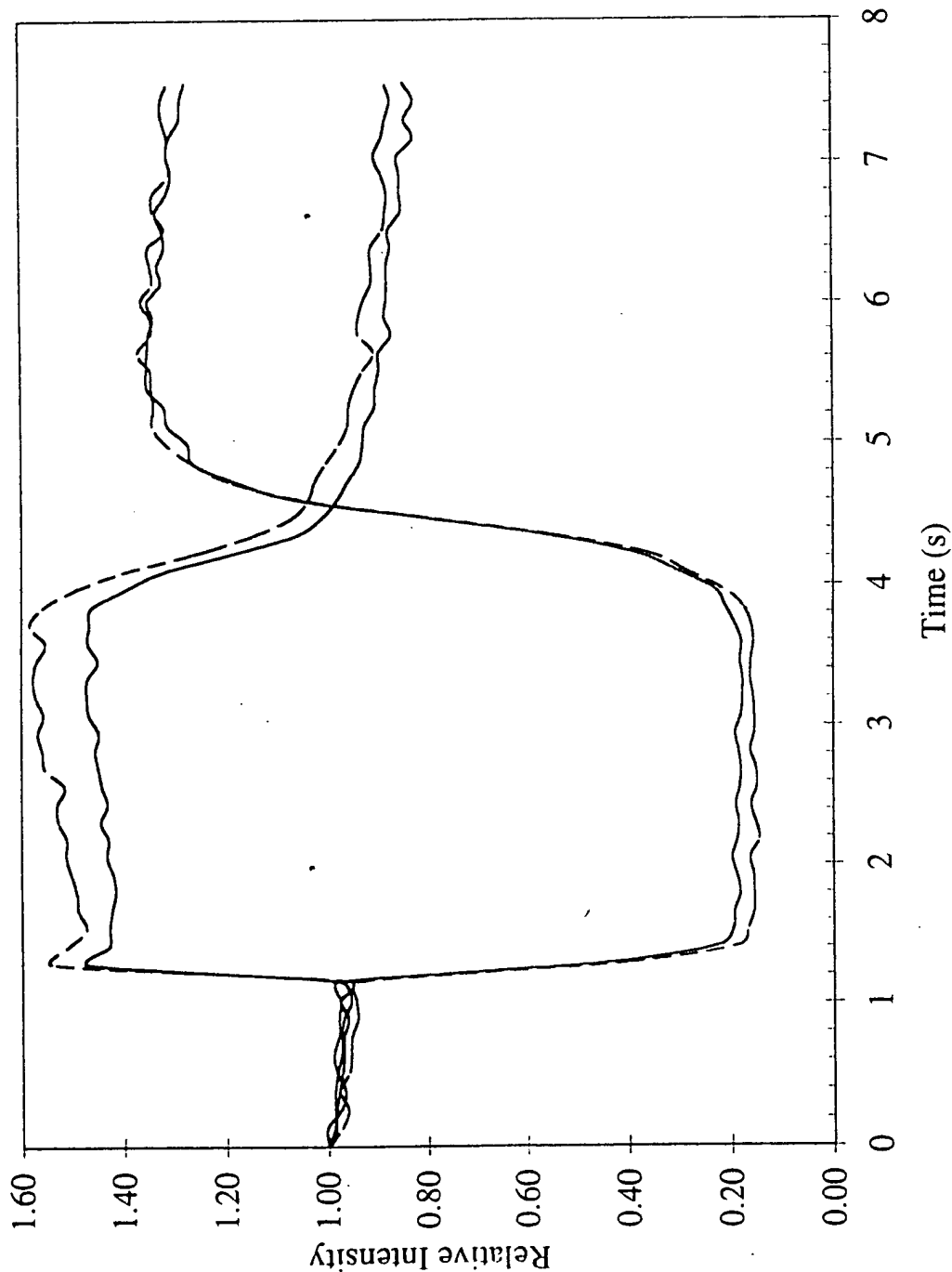
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W

"Thick-layer" PS802/Silica 3.2 μ m Beads

Region 2



- Saturated vapor
- 100X objective
- 50ms exposure

met1	met2	tol1	tol2
—	---	—	---

260.1A

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Atkinson



Self-Encoding Array with Two Bead Types in Image Guide Wells

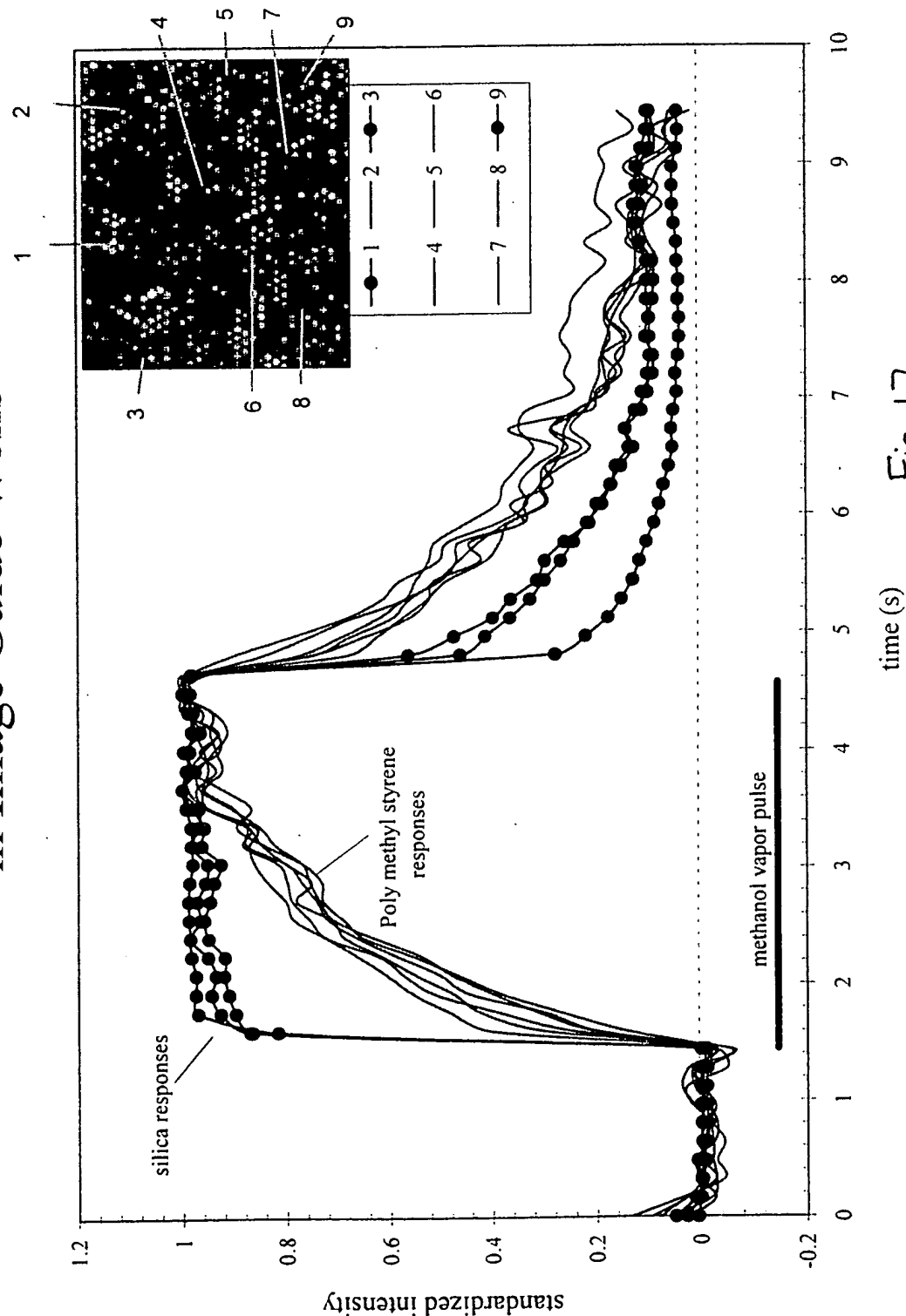


Fig. 17

Chart3

Self-Encoding Array with Two Bead Types in Image Guide Wells



Fig. 18

Chart4

Self-Encoding Array with Two Bead Types in Image Guide Wells

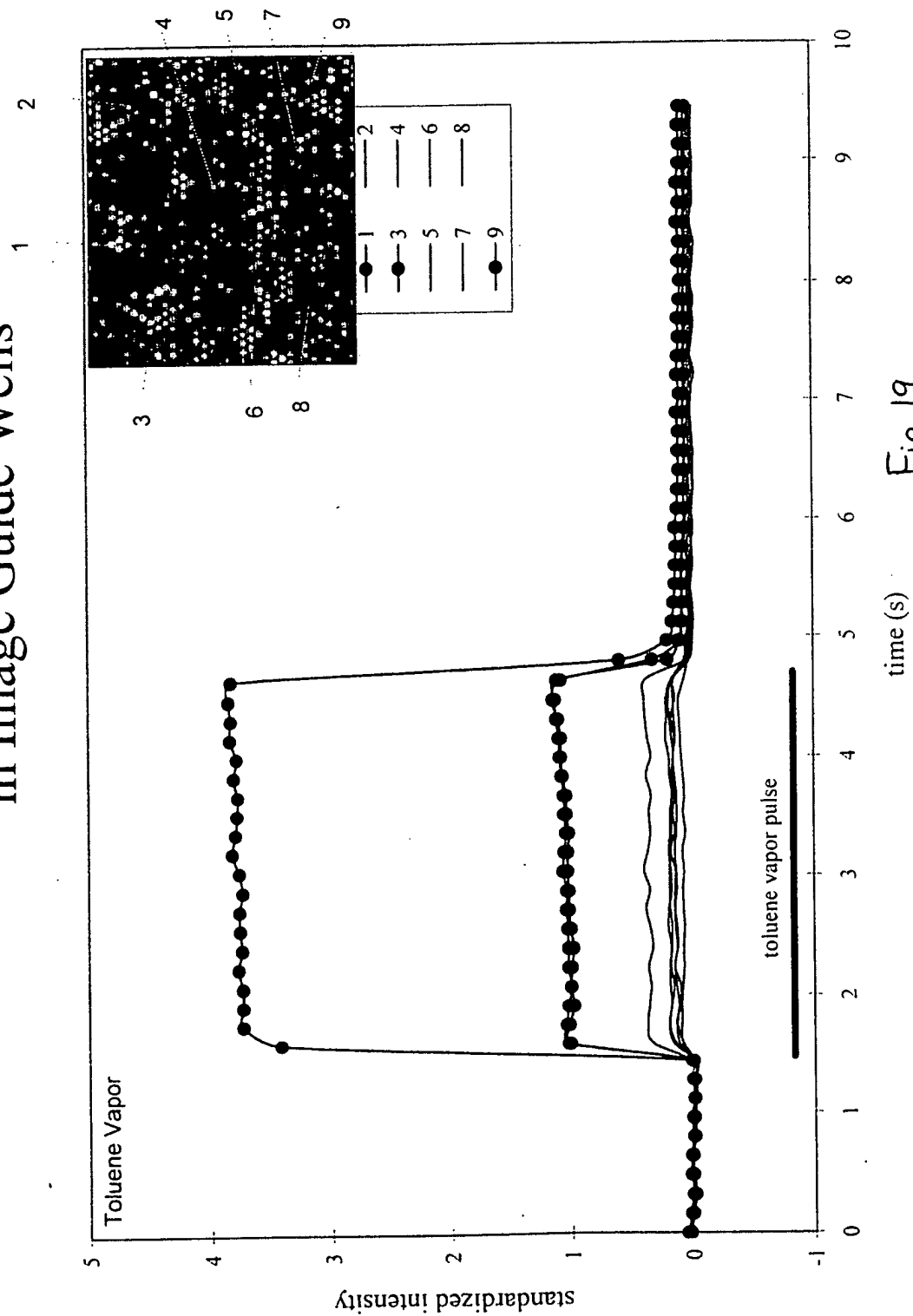
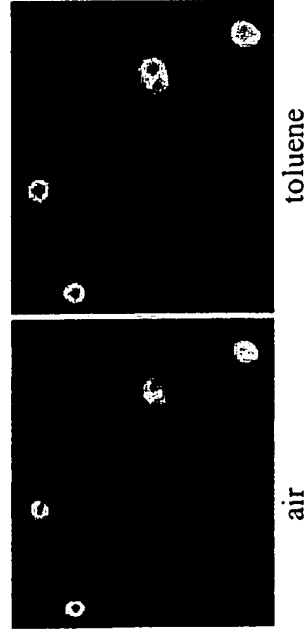


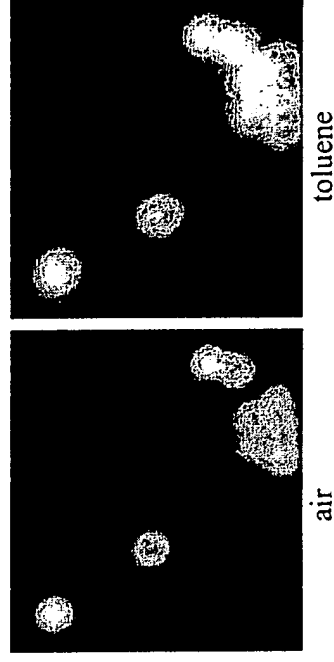
Fig. 19

Swelling of three different bead types in presence of saturated toluene vapor

PS802 648.c



Poly methyl styrene/
2% divinyl benzene



Poly methyl styrene

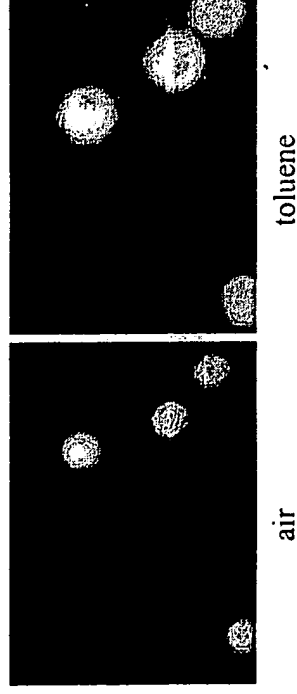


Fig. 20

665040" E2523260

Fig 21

Probe	[Cy5]	[Tamra]	[Eu-dye]	Correct Target Identification
HWt	1		0.1	93%
Bglo	0.5		0.05	88%
KWt	0.5		0.005	91%
IL6	0.1		0.1	96%
IL4	0.1		0.005	95%
IFNG		0.4	0.005	95%
IL2		0.04	0.05	98%

Fig 22

1) β -glo (segment of human β -globin)²⁴
 TCA ACT TCA TCC ACG TTC ACC
 2) IFNG (interferon gamma 1)²⁴
 IFNG TGG GTT CTC TTG GCT GTT ACT
 3) IL2 (interleukin-2)²⁴
 TA CAA GAA TCC CAA ACT CAC CAG
 4) IL4 (interleukin-4)²⁴
 CC AAC TGC TTC CCC CTC TGT
 5) IL6 (interleukin-6)²⁴
 GT TGG GTC AGG GGT GGT TAT T
 6) K-ras WT²⁷
 GGA GCT GGT GGC GTA
 7) H-ras WT²⁷
 CCG GCG GTG T
 8) CFTR (cystic fibrosis exon 11)¹³
 CAT TAT ACT TGT AGA G
 9) RS53X (cystic fibrosis exon 10)¹³
 TGT AGA ATT ATC TTC
 10) PAN132¹⁶ (human peripheral lymphocyte)
 CCT CTA TAC TTT AAC GTC AAG
 11) Schema-2¹⁶
 AAG TTT AAC CTA TAC CCT GTC
 12) Hakala-1²⁰
 CCT ATG ATG AAT ATA G
 13) Hakala-2²⁰
 AAT ATG ATA ATG GGC T
 14) complement to probe 1
 TG AAC GTG GAT GAA GTT G
 15) complement to probe 2
 AG TAA CAG CCA AGA GAA CCC AAA
 16) complement to probe 3
 CT GGT GAG TTT GGG ATT CTT GTA
 17) complement to probe 4
 AC AGA GGG GGA AGC AGT TGG
 18) complement to probe 5
 AA TAA CCA CCC CTG ACC CAA C
 19) complement to probe 6
 TAC CCC ACC AGC TCC
 20) complement to probe 7
 ACA CCG CCG G
 21) complement to probe 8
 CTC TAC AAG TAT AAT G
 22) complement to probe 9
 GAA GAT GTT AAA GTA TAG AGG
 23) complement to probe 10
 CTA GAC GTT AAA GTA TAG AGG
 24) complement to probe 12
 CTA TAT TCA TCA TAG G
 25) complement to probe 13
 AGG CCA TTA TCA TAT T

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Fig 23

Target Identity	No. of beads in analysis section	[Cy 5]	[Tamra]	[Eu-dye]	Correct Target Identification
2	19		3	0.5	89%
4	15	0.01	0.1	0.1	87%
5	13		0.1	0.1	100%
9	5	0.01			100%
10	14			0.001	86%
11	12		0.1		92%
15	8	0.01	0.1		100%
16	24	0.1			92%
21	21	0.1	3		95%
24	16	0.3	3		94%

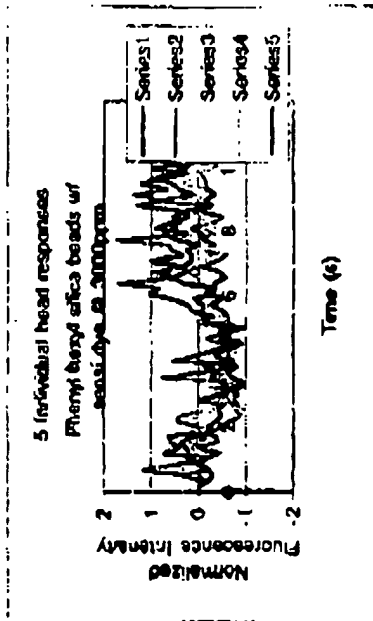
Table 4

Sequences	Number of microspheres	Mean background \pm s.d.	Fluorescence after hybridization	Signal
Complementary target	10	997.01 \pm 4.62	1036.94	39.93
	10	1003.46 \pm 6.05	1035.83	32.37
	10	957.44 \pm 5.59	985.25	27.81
	100	977.88 \pm 3.21	1010.74	32.86
Poly A	10	1213.79 \pm 6.33	1221.61	(7.81)
	10	1185.25 \pm 9.39	1194.74	(9.49)
	10	1190.20 \pm 4.85	1198.35	(8.15)
	100	1190.67 \pm 4.05	1199.81	(9.14)
IL2	10	1090.58 \pm 4.97	1096.11	(5.53)
	10	1120.62 \pm 3.09	1113.88	(-6.74)
	10	1101.82 \pm 5.51	1091.28	(-10.55)
	100	1104.36 \pm 1.40	1103.06	(-1.30)

Fig 24

fig 15

CV = 12.4%



CV = Coefficient of variance

$$CV = \frac{\text{St. deviation}}{\text{mean}}$$

Basic idea is that CV decreases
as more bead responses are
summed.

66340" 2.23260

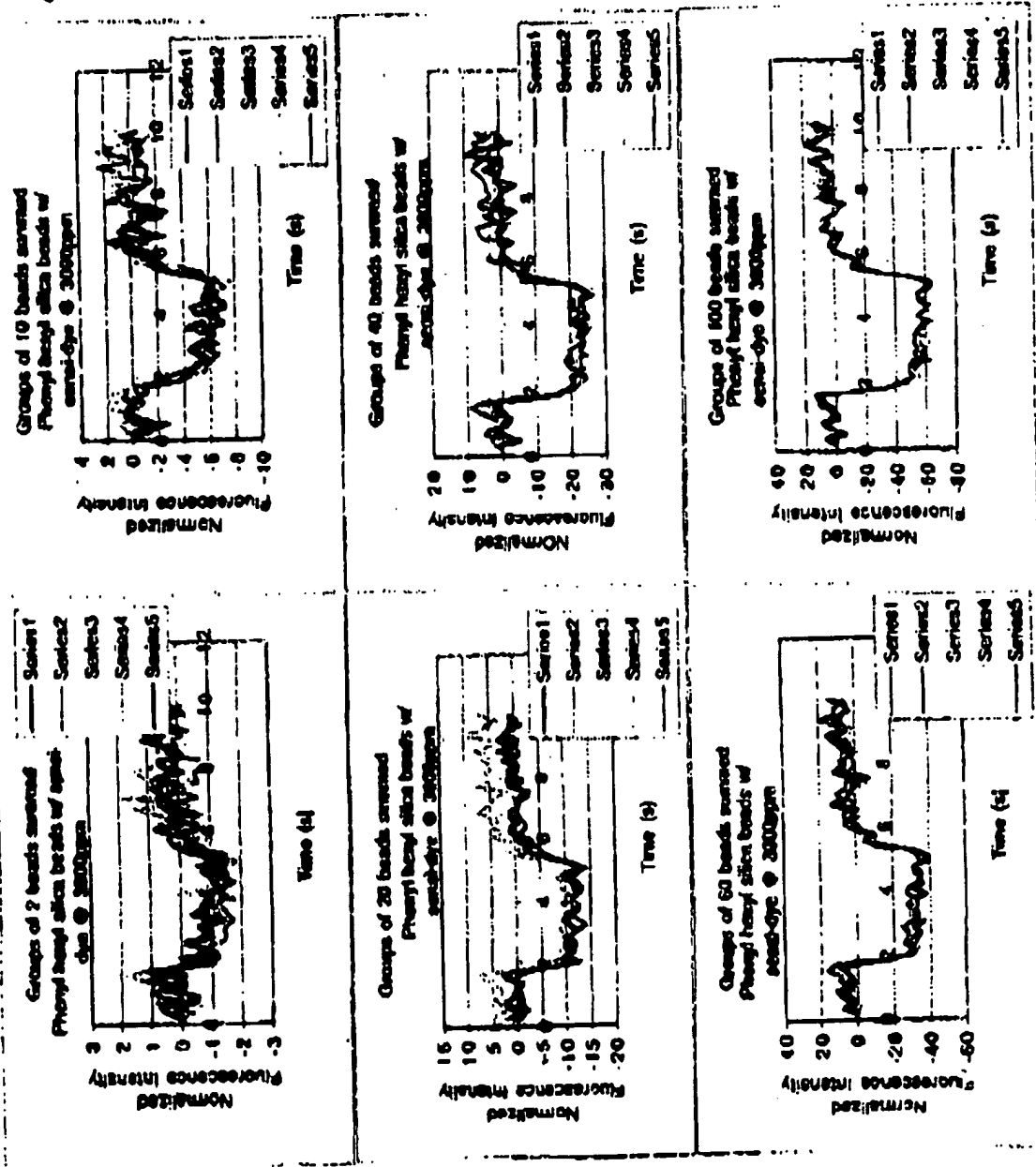
663043 662355

CV = 0.1300
%CV = 13%

%CV = 6.3%

%CV = 4.8%

Fig 25
(Cont.)



CV = 3.5%

2.5%

7.2%